

SPACE MATH

EDUCATIONAL GAME

MANUAL

**APPLE
IIc & IIE**



Space Math

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WHAT IS SPACE MATH?

Space Math is a math educational game which was designed to be challenging and fun. The advantage of learning math with this game over traditional methods is that the child or adult will enjoy it more and will spend more time with it. Of course, spending more time solving addition, subtraction, multiplication, and division problems causes the student to learn more quickly.

NOTE TO PARENTS

It might be necessary to explain this game to younger children since they might not understand the instructions. Once the rules are explained to the younger child, he or she will be able to learn how to play the game quickly since playing this game is not complicated. Adults and parents will enjoy this arcade-quality game because it is challenging and fun.

OBJECT OF THE GAME

The object of this game is to move your landing module around by giving correct answers to the math problems so that you can land on the landing pad to get points. If you land too hard, your lander will blow up. The lander moves downward because of gravity. It is moved to the left by correctly answering the problem or problems in the "Left" box. It is moved to the right by correctly answering the problems in the "Right" box. The ship is moved upward by correctly answering the problem in the "Thrust" box.

HOW TO BEGIN THE GAME

- 1) Place the diskette in the disk drive.
- 2) Turn the computer on.
- 3) Set the screen resolution to low since this game will only run on low resolution.
- 4) Run the SPACEMATH program.
- 5) The next step is to "Start" the game or set the "Difficulty" levels from the Options Menu. If you don't choose the difficulty level for the lander, the problems, or the hazards before starting the game, you will automatically be set on the easy level on all three options. You can choose from easy, medium, or hard on all three options. For more information on these difficulty levels, read the "Difficulty Levels" section later in the manual.
- 6) When you choose "Start" to begin the game, a user responsibility box will appear. The user clicks on this box agreeing that he or she will not duplicate this game as regulated under the international Copyright laws. Now, Screen One will appear with the lander falling from gravity waiting to be controlled.

HOW TO PLAY THE GAME

Moving the Lander

The right and left cursor arrows are used to move between the types of math problems such as Left, Thrust, Right, and Fuel. Correct answers to the math problems move the ship in the direction of what the problem is under. To give an answer, type in the number and hit return. If you type in a wrong answer and want to change it, you can do so by using the backspace key if you have not hit return yet. If you correctly answer a problem under the "Left" box, your lander will move to the left. A correct answer in the "Right" box will cause your ship to begin moving to the right. A correct answer in the "Thrust" box will cause your lander to begin moving upward. The gauges at the right of the instrument panel at the top of the screen let you know how fast and in what direction your lander is going. If you get your lander going too fast to the right, to the left, upward, or downward by answering too many questions, you might not be able to regain control of the ship and could crash. Using the gauges will help you to not lose control of your ship.

How To Score Points

The main way to score points is to land the ship on the landing pad gently without crashing it. The next most important way to earn points is by correctly answering the problems. Speedy landings earn bonus points. The last way to earn points is by receiving a bonus at the end of the game for extra fuel.

The number of points earned with each successful landing will depend on the pad that you land on, how quickly you land, and how well you land. If you crash the ship by landing too hard or by hitting an object or the terrain, you will lose 50-110 points depending on the difficulty levels chosen. The harder the difficulty levels chosen, the more points you will lose. Several frames have more than one landing pad. The harder it is to land the ship on the landing pad, the more points will be given. The number of points for each pad are displayed under the pad.

The more quickly you land your ship, the more points you will earn. If you land the ship within 2 minutes, you will get a bonus of 50 points. Landing within 3 minutes will give a bonus of 30 points while landing within 4 minutes will give a bonus of 15 points.

If you land your ship on the center of the landing pad, you will be given the number of points seen under the landing pad. If you land with part of your ship off of the pad, you will not get as many points. The less that your ship is landed on the pad, the less points that you will receive.

Correct answers will earn 4-10 points depending on the difficulty levels chosen. The harder the difficulty levels chosen, the more points will be earned. Wrong answers will cause you to lose 10 points.

At the end of the game, when you successfully land your ship in the eighth frame, you will be awarded bonus points for any remaining fuel. The more fuel that you have, the more points you will be given. The point bonus will be equal to 10% of the units of fuel. For example, ending the game with 300 units of fuel would give the player a bonus of 30 points. It is a good strategy to answer "Fuel" questions whenever there is a break in ship activity so that you can collect this "Fuel" bonus at the end of the game provided that you don't crash the ship. Also, the more questions that you answer, the more points you will earn. Whenever a lander is destroyed, all fuel is lost. The new lander comes with only 25 units of fuel.

Using and Earning Fuel

Fuel is needed to thrust the lander. If you run out of fuel and you answer the "Thrust" problems, your lander will not be given thrust. This is an indication that you are out of fuel. Each time that thrust is used, 5-11 units of fuel are used up depending on the difficulty levels chosen. The harder the difficulty levels chosen, the more units of fuel will be used up. Incorrect "Fuel" answers use 4-10 units of fuel depending on the difficulty levels chosen. As said before, all incorrect answers cause you to lose 10 points. When the ship is blown up in a crash, all fuel is lost. The new lander comes with only 25 units of fuel.

The main way to earn units of fuel is by correctly answering the math problems in the "Fuel" box. Each correct answer will provide 15 units of fuel. Of course, correctly answering these problems or any others also earns the player 4-10 points on his or her score as said before in the "How To Score Points" section. Each correct answer on a division problem also provides 15 units of fuel. If you run out of fuel and need it right away, pressing the "F" key will give you 25 units of fuel at a cost of 200 points. However, you need a score of at least 200 points get this extra fuel.

Number Of Landers In Game

When you start the game, you will be given 4 landers. One will already be on the screen falling from gravity. The other three will be on reserve in the holding room on the lower right corner of the screen. When a ship comes into contact with an object, the terrain, or a hazard, it will blow up. The next ship will automatically be brought out of the holding room when you click on "Ready For Another Lander" or press the Return key. Once you use up all 4 ships, the game is ended even if you have not played all 8 frames.

Hazards

There are many hazards that must be avoided. These hazards include UFO's, meteors, a black hole, laser beams, turbulent energy spheres, and moving hooks. Running into any of these hazards will cause the lander to explode. Also, if the UFO's catch up to the lander, it will explode.

Difficulty Levels

There are 27 possible difficulty settings. You can choose from Easy, Medium, or Hard on the lander, on the problems, and /or on the hazards. As said earlier, the harder the combination of difficulty levels chosen, the more points can be earned or lost and the more units of fuel can be earned or lost. For example, choosing "Medium" on "Lander," "Medium" on "Problems," and "Easy" on "Hazards" would allow more points to be earned or lost than choosing "Easy" on "Lander," "Easy" on "Problems," and "Medium" on "Hazards."

Choosing a harder level of difficulty on "Lander" will cause the gravity to be much stronger. More thrust will be needed as it will propel the ship less strongly. Choosing a harder level here will require the player to answer the thrust problems more quickly. Of course, the player will also have to answer more fuel problems since using more thrust would use more fuel. Choosing a harder level of difficulty on "Problems" will cause harder math problems to be given. The problems will have bigger numbers and will have more variety. The harder problems take more time to solve but make the game more challenging.

Choosing a harder level of difficulty on "Hazards" will cause the hazards to be more dangerous. The UFO's, laser beams, and hooks will move more quickly, the meteors and turbulent energy spheres will appear and disappear more frequently, and the black hole will have more pulling force. The player will need to think more quickly when the harder levels have been chosen.

What The Gauges Mean

The instrument panel on the top of the screen lets you know how you are doing. "Screen" tells you what screen number you are playing. "Fuel" lets you know how many units of fuel that you have. "Score" tells you what your current score is. "X" is followed by a directional arrow and a number. This represents the sideways motion of your lander. For example, if

you're lander is moving to the right, the arrow will be pointing to the right and the number will tell you how fast your lander is going to the right. "Y" stands for the upward or downward motion of your ship. For instance, if your ship is moving downward, the arrow will be pointing down and the number will tell you how fast your lander is going down.

Keeping track of the instrument panel will help you to keep your lander out of danger. For instance, if you are about to run out of fuel, you will want to quickly answer some "Fuel" problems or press the "F" key. Or, if your lander is moving too quickly towards an object, you can answer questions in the opposite direction until the speed is slowed down enough.

TWO CONVENIENCE KEYS

By pressing "P" on the keyboard, you can pause the game if you have to go to the bathroom or whatever. If you pause more than 4 times in the game, your lander will explode. Once you have lost a ship from pausing more than 4 times, you can then pause another 4 times before losing another lander. Pressing "Undo" ("ESC" on the Amiga) on the keyboard will allow you to quit the game. If you choose to cancel, it will count as one pause.

HIGH SCORE/ LAST SCORE SAVE

The five highest scores will be saved. The last score will also be saved. When this game is new, the five highest scores and the last score will be blank. If you want to have the five highest scores and the last score saved, you have to make sure that the write protection tab is closed. If you want to delete all of the high scores and the last score, you need to drag the file named LANDER.SCR to the garbage. Once you have done this, all of the highest scores and the last score will be blank.

GENERAL TIPS FOR PLAYING THIS GAME

- 1) Don't land the ship too hard to avoid it being exploded. If you are not sure if the lander is going slowly enough when you are landing it, answer a "Thrust" problem just before it lands.
- 2) Be aware that the lander doesn't react right away because of gravity and inertia. The lander was designed this way on purpose. Don't let the lander build up too much speed. If the lander has too much speed, you might not be able to stop it and it will crash against something. Be especially careful to not let the gravity cause the lander to get going too fast. When the lander is going real fast, it takes four thrusts to stop it from descending.
- 3) Don't be so busy answering "Fuel" problems that you crash. Crashing will cause you to lose all of your fuel anyway.
- 4) Make sure that you answer "Fuel" questions when your lander is in an easy situation. Then, when your lander is in difficult situations, you'll be able to concentrate on moving the ship rather than getting fuel.

ABOUT THE SCREENS

Screen 1: The UFO's must be avoided. Collision with either of these will cause your lander to explode. The landing pad on the top left is worth 150 points while the one on the lower right is worth 100 points.

Screen 2: Avoid the UFO's. The landing pad on the top left is worth 100 points, the one on the top right is worth 200 points, and the one on the bottom left is worth 400 points.

Screen 3: After a period of time, meteors will appear at the bottom of the caverns. A collision with any of these would be fatal. The pad on the left is worth 200 points while the one on the right is worth 250 points.

Screen 4: There are no hazards here. However, the score on the landing pad begins at 600 points and gets lower and lower with time. The longer you take to land the ship, the lower your score

will be on the pad.

Screen 5: Avoid the black hole. It will try to suck the lander into its inner depths. You will need to use thrust to avoid this hazard. The one landing pad is worth 200 points.

Screen 6: You must get past the laser beams before reaching any of the three landing pads. You have to wait until the laser beams are not shining to pass these dangerous points. If the laser beam zaps the lander, it will explode. Also, if the lander runs into the laser beam, it will explode. The pad on the left is worth 300 points, the one in the middle is worth 200 points, and the one on the right is worth 400 points.

Screen 7: Watch out for the turbulent energy spheres. You cannot see them until you thrust the lander. The one pad is worth 400 points.

Screen 8: You must pass the laser beam while it is not shining. Also, watch out for the moving hooks. The three landing pads are worth 300, 400, and 500 points each.

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